Developing a Nonpoint Source Assessment Report

Janette Marsh
Nonpoint Technical Contact
Watersheds and Wetlands Branch
US EPA Region 5

Remember this webpage
www.epa.gov/owow/nps/sec319cwa.html

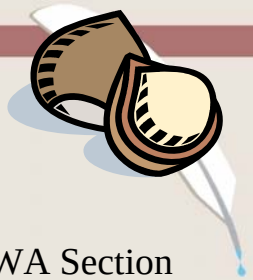
- **Polluted Runoff (Nonpoint Source Pollution)**
- Text of CWA Sec. 319 Law **EXPCITE TITLE 33 - NAVIGATION AND NAVIGABLE WATERS**

CHAPTER 26 - WATER POLLUTION PREVENTION AND CONTROL
SUBCHAPTER III - STANDARDS AND ENFORCEMENT

- **CITE 33 USC Sec. 1329**
  01/24/94
- **HEAD** Sec. 1329. Nonpoint source management programs
- **STATUTE**
- **State assessment reports**
- Contents The Governor of each State shall, after notice and opportunity for public comment, prepare and submit to the Administrator for approval, a report which - identifies those navigable waters within the State which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards or the goals and requirements of this chapter;
- identifies those categories and subcategories of nonpoint sources or, where appropriate, particular nonpoint sources which add significant pollution to each portion of the navigable waters identified under subparagraph (A) in amounts which contribute to such portion not meeting such water quality standards or such goals and requirements;
- describes the process, including intergovernmental coordination and public participation, for identifying best management practices and measures to control each category and subcategory of nonpoint sources and, where appropriate, particular nonpoint sources identified under subparagraph (B) and to reduce, to the maximum extent practicable, the level of pollution resulting from such category, subcategory, or source; and
- identifies and describes State and local programs for controlling pollution added from nonpoint sources to, and improving the quality of, each such portion of the navigable waters, including but not limited to those programs which are receiving Federal assistance under subsections (h) and (i) of this section.
- Information used in preparation In developing the report required by this section, the State (A) may rely upon information developed pursuant to sections 1288, 1313(e), 1314(f), 1315(b), and 1324 of this title, and other information as appropriate, and (B) may utilize appropriate elements of the waste treatment management plans developed pursuant to sections 1288(b) and 1313 of this title, to the extent such elements are consistent with and fulfill the requirements of this section.
- **State management programs**
- In general The Governor of each State, for that State or in combination with adjacent States, shall, after notice and opportunity for public comment, prepare and submit to the Administrator for approval a management program which such State proposes to implement in the first four fiscal years beginning after the date of submission of such management program for controlling pollution added from nonpoint sources to the navigable waters within the State and improving the quality of such waters.
- Specific contents Each management program proposed for implementation under this subsection shall include each of the following:
  Federal assistance programs and shall accommodate, according to the requirements and definitions of Executive Order 12372, as in effect on September 17, 1983, the concerns of the State regarding the consistency of such applications or projects with the State nonpoint source pollution management program.
- Collection of information - The Administrator shall collect and make available, through publications and other appropriate means, information pertaining to management practices and implementation methods, including, but not limited to, (1) information concerning the costs and relative efficiencies of best management practices for reducing nonpoint source pollution; and (2) available data concerning the relationship between water quality and implementation of various management practices to control nonpoint sources of pollution.

2

Purpose of the NPS Assessment Report *(in a nutshell)*



- Requirement for participation in the CWA Section 319 Program
- Identifies nonpoint source-related water quality problems
- Programs and methods to control NPS pollution

3

NPS Assessment Report: Setting Up for Management Plan

- Outlines priority issues to address
- Identifies the management activities that will be outlined in the Management Plan
- Identifies BMPs which should appear in the Management Plan

4

Document and Communicate the Nonpoint Source Pollution Issues

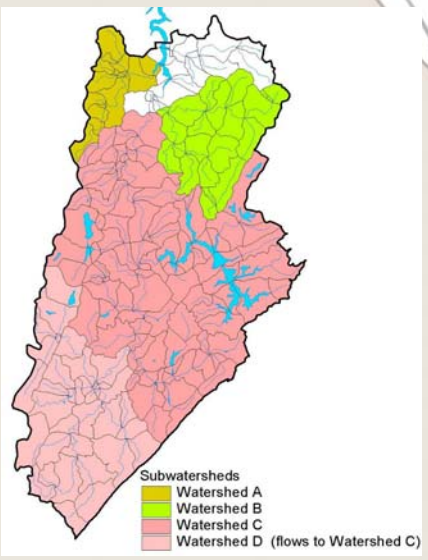
- Establish Waterbody Uses
- Identify NPS Pollution
- Link Sources of Pollution with Waterbody
  - Use spatial analysis and water quality data analysis
- Describe Impairment/Prioritize
  - How is a waterbody judged to be “impaired”
  - What is the degree of waterbody impairment?
  - What are the priorities for restoring impaired waterbodies?

5

Assessment Report: What’s Involved?

1. Geographic Analysis:

-Basic Hydrology
-Watersheds
-Subwatersheds
-Types of waterbodies



Assessment Report: What's Involved?

2. Set/ Adopt Water Quality Goals/Standards/ Beneficial Uses

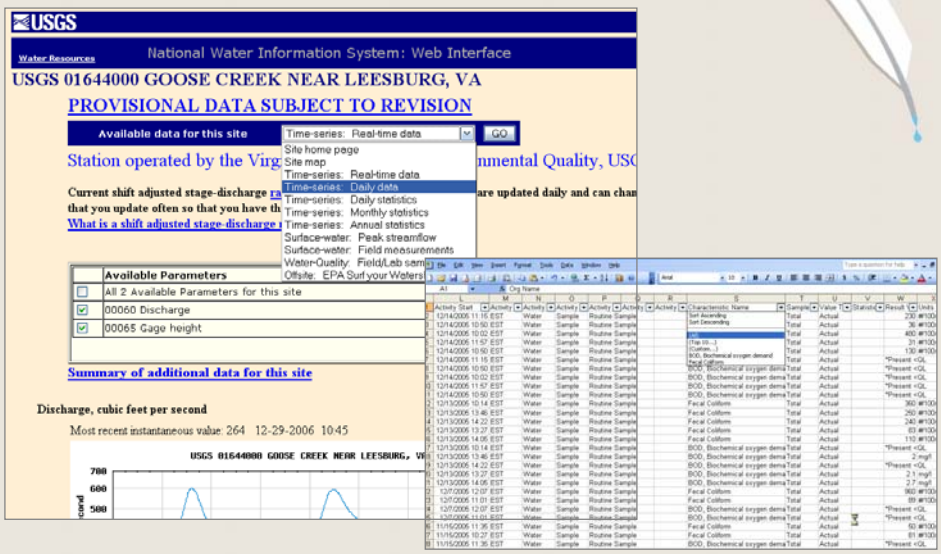
Assessment Report: What's Involved?

3. Identify NPS pollutants in waterbodies

8

Assessment Report: What's Involved?

4. Analyze existing water quality data



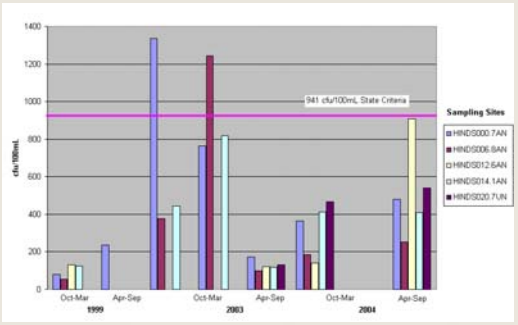
Assessment Report: What's Involved?

5. Describe impairment status of waterbodies:

- Thresholds for Pollutants Are Exceeded

- Waterbodies Are Not Meeting Beneficial Uses (e.g., Recreation/Fishing/…)

- Waterbodies Are Impaired to A Specified Degree (e.g. 50% of Samples Exceed Limits)



Assessment Report: What's Involved?

6. Link NPS pollution sources with water quality problems

11

NPS Control Programs

- For each category of NPS pollution, identify and describe all available methods and programs

12

Components

- Cover
- Contents
- Overview
- Introduction
- Methodology
- Land Use Summary
- Surface and Ground Water Summary
- Water Quality Data and Interpretation
- Best Management Practices
- Public Participation and Coordination
- Nonpoint Source Control Programs
- Conclusions
- References
- Appendices
- Acronym List

13

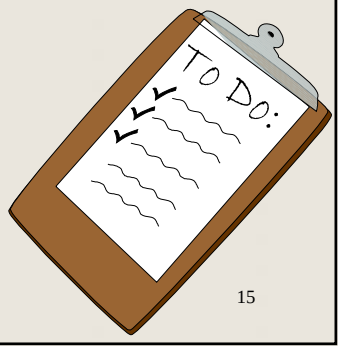
Overview: An Executive Summary

- Do It Last!
  - Present major conclusions
  - Highlight broad areas of concern
  - What is the Hydrologic/Watershed/River Basin Location of the Reservation?
  - What are the primary waterbodies/rivers and their extent?
- Present significant data and general findings
  - What is the extent of NPS Pollution? Impaired stream miles?
  - What are the primary NPS Pollutants of Concern?
  - Significant pollution sources: What are the major activities on the reservation that generate sources of NPS Pollution?

14

Introduction

- Purpose of the report: Outline NPS pollution on the reservation
- Why is NPS pollution a problem?
- What are the principal pollutants and their probable sources?



15

Introduction (continued)

- What are the goals of the Tribe's NPS water pollution control program?
  - Example goals:
  - To reduce NPS pollutants from ranching activities that pose a threat to fisheries and surface drinking water intakes
  - To restore aquatic habitat that has been degraded by bank disturbances to improve tribal fisheries
  - To meet Federal requirements and set a baseline for the management plan

16

Regional Location Map

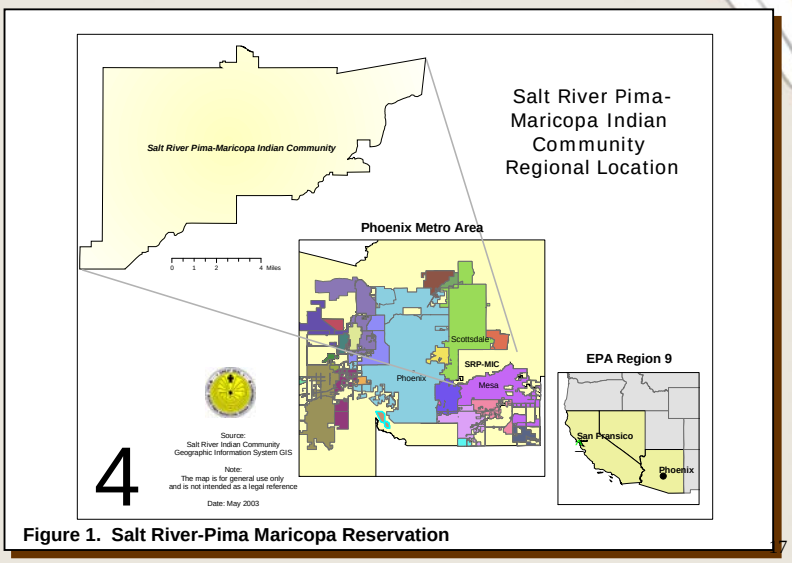
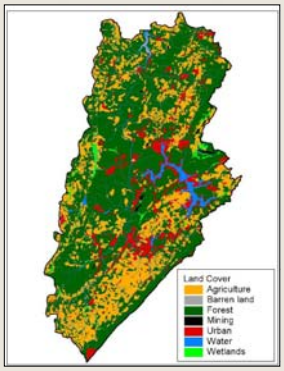


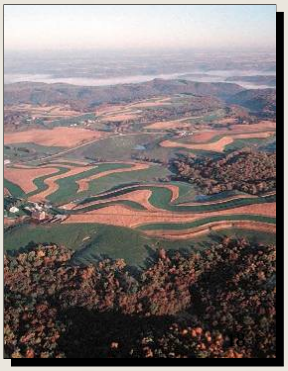
Figure 1. Salt River-Pima Maricopa Reservation

17

Land Use Summary

- Physical characteristics
  - Land use/Land cover extents
  - Ecoregions (level?)
  - Potential Natural Vegetation Regime
  - Physiography
  - Geology
  - Soils
  - Topography
  - Climate





Land Use Summary (continued)

- **Land uses**
  - Urban areas (Industries/ schools/ commercial/ residential)
- **Economic Resources**
  - Crop acres/Locations/ Agronomic Practices
  - Rangeland
  - Mining
  - Fisheries/ Shellfish
  - Forestry and Timber Areas
- **Socioeconomic conditions**
  - Density/Location of Population
  - Economic Activities
  - General Income
  - Unique challenges

Surface and Ground Water Summary

Provide an Overview:

- Surface waters
  - Watershed size
  - Hydrology
  - Uses
- Groundwater
  - Types of aquifers
  - Potential for pollution
  - Uses

Surface and Ground Water Summary

Communicate Hydrologically!

Map of Reservation Waters

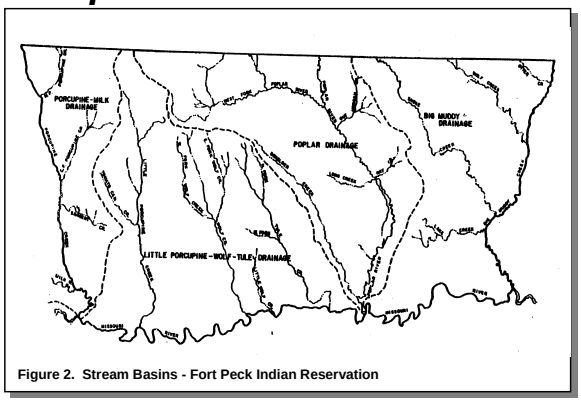


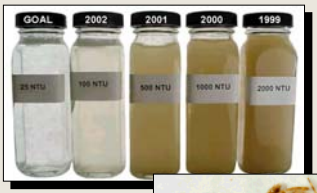
Figure 2. Stream Basins - Fort Peck Indian Reservation

…Organize your summaries by subwatershed…

21

Methodology: Water Data Sources

- **Identify data sources**
  (Internal and External)
  - 106 monitoring data
  - Volunteer monitoring
  - State or federal sources
  - USGS databases
  - GIS data
- For each data source used, include:
  - Methodology used to obtain data
  - Type and purpose of sampling
  - Specialists contacted
  - Documents referenced



Types of Pollutants/Degree of Impairment

- Water Quality Data
  - Parameters exceeding water quality targets /criteria
  - NPS Impairments
- Data Analysis
  - Decision process on “impairment” status
  - Decision process on degree of impairment (low/medium/high)
  - Decision process on priority waterbodies (for restoration)

Basis of analysis

  - Division of subwatersheds or hydrologic units

23

Methodology: Pollution Categories

NPS Pollution Source Categories

Table 2. NPS Pollution Source Categories

CATEGORY	*EXAMPLES*
Storm Sewers/ Urban Runoff	Runoff from impervious surfaces including streets, parking lots, buildings, and other paved areas
Agricultural	Crop production, pastures, rangeland, feedlots, animal operations
Silvicultural	Forest management, tree harvesting, logging road construction
Construction	Land development, road construction
Resource Extraction	Mining, petroleum drilling, runoff from mine tailing sites
Land Disposal	Leachate or discharge from septic tanks, landfills, and hazardous waste sites
Hydrologic Modification	Channelization, dredging, dam construction, flow regulation
Habitat Modification	Removal of riparian vegetation, streambank modification, drainage/filling of wetlands

24

Methodology: Pollution Categories

- NPS Pollution Categories and Subcategories
  - Example: List and define NPS pollution classified under "Agricultural Runoff"
    - Manure spreading from animal operations
    - Sediment generated by cattle along streambanks
    - Herbicides in local waterways

25

Results Presentation

NPS Pollutants linked to Sources in Sub-watershed

Waterbody	Cause of Impairment	Source of Impairment and Source Subcategory	Degree of Impair-ment	Monitored/ Evaluated	Miles
XXX River (South of Oak Bridge to Postoffice)	Fecal Coliform	Agriculture *(Ranching)*	Severe	Best Professional Judgement	32.5
YYY Stream (Upper Lake to Postoffice Tributary)	Sediment	Silviculture *(Runoff from unused forest roads)*	Slight	Sampling Data Analysis 2003-2004	3
Marine (shoreline from X to Y)	Fecal Coliform	Urban *(Leaching from Septic Systems)*	Moderate	Best Professional Judgement	14

26

Discussion: Surface and Ground Water Summary

Discussion of NPS Pollution/Sources in Watershed/Subwatershed

- NPS pollution categories and subcategories of concern
- Impairments identified from water quality data analysis
- Location of NPS problems:

e.g.: In XX and YY subwatersheds; in marine subwatersheds only; throughout the reservation

St. Mary's Creek Watershed

Source Category: Agricultural Runoff

Subcategory: Cattle Grazing and Ranching Operations

- Soil slumping in grazing areas (sediment)
- Loss of riparian vegetation from cattle grazing in and out of streams (sediment and temperature problems)
- Contaminated runoff and direct deposition of manure to streams (pathogens)

27

NPS Control Programs

NPS Control Programs

- Identify and describe all available programs and opportunities for controlling NPS pollution
- Organize by category of NPS pollution

Select Best Management Practices

- Agency and organization participation
- Public participation
- Program assistance

Existing BMPs

Table 1. Existing agriculture BMPs by NPS category.

NPS Category	Nonpoint Source	NRCS Conservation Practice Standards		Responsible Parties/Cooperators	Potential Funding Sources
Hydrologic & Habitat Modification	Historic Overgrazing, Erosion & Habitat Destruction & Natural Geologic	322	Channel Vegetation	Tribal EPA/NRCS	CWA 319
		390	Riparian Herbaceous Cover	Tribal EPA/NRCS	CWA 319
		395	Stream Habitat Improvement & Management	Tribal EPA/NRCS/ USFW/ University	CWA 319/ USFW
		410A	Grade Stabilization Structures (Rock Drop)	Tribal EPA/NRCS	CWA 319
		584	Stream Channel Stabilization	Tribal EPA/NRCS	CWA 319

Conclusions

- Summarize key findings
- List special concerns
- Identify the most detrimental categories of NPS pollution
- Identify waterways with the greatest need for restoration

31

Other Sections

- References
- Appendices
- Acronym list

32

Existing Data Sources

Watershed Boundaries
- USGS Hydrologic Units (http://water.usgs.gov/GIS/huc.html)

Hydrology
- National Hydrology Dataset (http://nhd.usgs.gov)
- FEMA Floodplain Maps (http://www.store.msc.fema.gov)

Topography
- USGS Topo Maps (http://topomaps.usgs.gov/ordering_maps.html)
- Topozone (www.topozone.com)
- Electronic versions if topo maps (http://topomaps.usgs.gov/drg)

33

Existing Data Sources (continued)

Soils
- Local Conservation Districts (www.nrcs.usda.gov/partners/districts.html)
- Soil Data Mart (http://soildatamart.nrcs.usda.gov)

Climate
- National Climate Data Center (www.ncdc.noaa.gov/oa/ncdc.html)
- Western Regional Climate Center (www.wrcc.dri.edu/rcc.html)

Land Use
- National Land Cover Data (www.epa.gov/mrlc/nlcd.html)
- USGS Land Use and Land Cover Data (http://edc.usgs.gov/geodata)

34

Existing Data Sources (continued)

Demographics

- Population (www.esri.com/data/download/census2000_tigerline/index.html)

Water Quality Data

- EPA's STORET Database (www.epa.gov/STORET/index.html)
- National Listing of Fish Advisories (www.epa.gov/waterscience/fish/advisories)
- USGS's National Water Information System Web Site (http://waterdata.usgs.gov/nwis)
- Volunteer Monitoring Program Data (www.epa.gov/owow/monitoring/volunteer)
- EPA's WATERS database (www.epa.gov/waters)

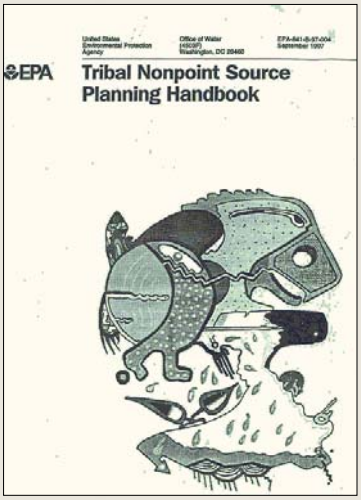
35

Reference Materials for NPS Assessment Report Development

Title	*Source*	*Date*
Waterbody System Users Manual (WBS 1996)	Available from USEPA Regional Offices	August 1995
Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Report Contents	USEPA Office of Water	September 1997
Guidance Specifying Management Measues for Sources of Nonpoint Pollution in Coastal Waters	USEPA Office of Water	January 1993
Reference Guide to Water Quality Standards for Indian Tribes	USEPA Office of Water	January 1990
Nonpoint Source Guidance	USEPA Office of Water	December 1987
Surface Water and Wetlands Protection Program Operating Guidance FY 1988	USEPA Office of Water	April 1987

36

NPS Planning Handbook



37

Sample Checklist

OVERVIEW:
G Purpose of report:
G Explain need for NPS assessment report:
G General summary of analysis to follow:

INTRODUCTION:
G Goals and objectives of NPS Assessment Report:

METHODOLOGY:
G Describe how and where the data for the analysis of the NPS sources of pollution were obtained:
G Any uncommon software or evaluation techniques?
G Describe how thoroughly the study was conducted; any assumptions made in the analysis:
G Any classifications/abbreviations made for assessment
G Types of sampling and purpose of sampling:

LAND USE SUMMARY:
G Describe in general, the existing conditions on the tribal lands:
G Include map
G Describe land uses and socioeconomic conditions:

SURFACE AND GROUND WATER QUALITY SUMMARY:
G Thoroughly describe the existing conditions of the tribal waters:
G Map of waters with complete description:
G Water hydrology and quality
G Existing NPS reduction program for tribal lands identified:

RESULTS:
G Present available scientific information related to NPS pollution on tribal lands
G Provide data table for waters
G Name of waterbody, size/length, identified pollutant, severity of impairment
G Discuss each major type of water quality parameter or pollutant
G Analyze data according to category of NPS pollution
G Identify waterbodies affected by each category

DISCUSSION:
G Discuss info presented in "Results" section
G Identify categories of NPS pollution that are causing the majority of impaired
G Water uses - rank them on impairment

SELECTION OF BMPS:
Purpose: identify the established process for selecting BMPS
G (1) core participation (mission statement):
G (2) public participation and government coordination:
G (3) specific programs (contacted for BMPS assistance):
G (4) Existing BMPS (organized by category of NPS pollution):
G (5) Pollution reduction - description of process:

NPS CONTROL PROGRAMS:
G For each category of NPS pollution, identify and describe all available programs for controlling NPS pollution

CONCLUSIONS:
G Provide a summary of the key findings of NPS assessment report and list special concerns
G Identify the category(ies) of NPS that is most detrimental and will be targeted in 319 program

REFERENCES:

APPENDICES:
GAny additional info?

ACRONYM LIST:

38